An Analysis of
MARKET DEVELOPMENT for FROZEN PASSION FRUIT JUICE

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CONTENTS

LIST OF TABLES

LIST OF FIGURES

AN ANALYSIS OF MARKET DEVELOPMENT FOR FROZEN PASSION FRUIT JUICE

Frank S. Scott, Jr.[1]

INTRODUCTION

Research by the Hawaii Agricultural Experiment Station indicates a substantial market potential for frozen passion fruit juice. Based on the results of sales in test areas, U. S. Mainland consumers could provide a market for 2.8 million cases of passion fruit juice at 21 cents per 6-ounce can.[2] This would retail at 14 million dollars and require juice from an estimated 4,500 acres. This potential is considered a good measure of what could be expected to take place on the entire mainland United States with promotion, merchandising, and distribution similar to that experienced in the test markets. This does not include requirements for passion fruit juice processed into other forms, such as frozen juice for bulk outlets.

The market must be developed as production is expanded if the level of sales indicated by the potential is to be realized. Output from the 509 acres in production as of January 1, 1958, slightly exceeds the amount which can be sold in 6-ounce cans plus other outlets without further advertising and promotion.[3] The industry has, in effect, reached a point where significant further expansion toward the potential can be attained only through well-planned development of the mainland market. A first step in this direction is a sound research program on costs and methods of market development.

PURPOSE

This report is primarily concerned with methods and costs of mainland market development for frozen passion fruit juice in 6-ounce cans. It is designed to serve as a guide to efficient expansion of the passion fruit industry.

SOURCES OF DATA

Data on which the study is based were obtained primarily from the following sources:

(1) Data on distributing problems were obtained first-hand by the writer in test areas and through conferences with numerous mainland brokers, distributors, and grocers.

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[1]Associate Agricultural Economist and Associate Professor of Agriculture, University of Hawaii.

[2]Scott, Frank S., Jr., *Frozen Passion Fruit Juice—An Appraisal of the Mainland Market Potential,* Agricultural Economics Report 25, Hawaii Agricultural Experiment Station, December, 1955.

[3]*Agricultural Production and Outlook,* Cooperative Crop and Livestock Reporting Service, Territory of Hawaii, January, 1958, page 13.

(2) Responses to various advertising media were measured in the San Francisco Bay Area and in Redlands, California, in conjunction with tests for determining the market potential for frozen passion fruit juice in 6-ounce cans.
(3) Ideas and plans for market development were obtained from 25 mainland advertising firms. In addition, valuable ideas came from processing companies, growers organizations, and available literature.

OBTAINING DISTRIBUTION

Wholesale

Market development is infeasible without adequate distribution. Unfortunate experiences with new products which have failed to attain anticipated repeat sales have been frequent. As a consequence, distributors are often unwilling to take on a new product unless there is evidence that it has been a good seller and is supported with a coordinated advertising and promotional program. Considerable difficulty has been experienced in obtaining distribution for frozen passion fruit juice for test purposes as well as for commercial distribution.

Frozen food distributors, even though they may handle a variety of products, are inclined to give primary attention to well-accepted big sellers such as frozen orange juice concentrate. Consequently, salesmen employed by distributors may be inclined to neglect a new product. It falls upon the industry, therefore, to devise some means of encouraging distributors to follow through and obtain maximum retail distribution. With a large number of products bidding for the distributors' facilities, each product is likely to be rated on the basis of aggregate sales in all outlets in relation to aggregate sales of competing products. Hence, if aggregate sales are low, the product may be dropped even though sales in the limited number of stores where distribution has been obtained may equal or exceed sales of some competing products.

Retail

The number of products bidding for space in retail frozen food cabinets far exceeds the number for which space is available. This is due in part to the inability of the retail store to expand fast enough and also to the fact that many frozen food products would not warrant the space if it were available. Thus, what is true for the distributor is also true for the retailer. The retail manager will not stock the new product—in this case frozen passion fruit juice—unless there is reliable indication of a good volume of sales supported by an acceptable advertising and promotional program. Once accepted, the product must live up to the expectations of the retailer if it is to be retained. Progressive grocers, in most instances, will not continue to stock a frozen food which (1) fails to meet a minimum value of sales per square foot of cabinet space, and (2) fails to move out in reasonable volume in relation to competing products.

Required minimum weekly sales per linear foot of cabinet space for two mainland chains for which data has recently been published were $23.33 and $40.00, respectively.[4] At this rate, the required minimum weekly movement for a 4-inch-wide row of frozen passion fruit juice would be $7.75 and $13.33. At $5.04 per case, the required weekly movement per store would range from 1.54 to 2.65 cases. As is pointed out later in the report, this level appears obtainable with supporting advertising and promotional programs but chances of obtaining it with only store placement and no advertising and promotion are almost nil.

Other supermarket managers base their decisions on whether or not to keep a frozen food product largely on how well it sells in relation to competing products which have already made a place for themselves in the market. For example, frozen passion fruit juice has a good chance of being retained where its sales exceed those of frozen grapefruit juice, frozen pineapple juice or certain other low-volume juices. This is true in some instances where the other juices do not quite reach the minimum volume requirements but have been sold for a long enough period of time to be considered standard products.

Brokerage

The broker is a primary liaison between the frozen food processor and the frozen food distributor or the grocery chain. Small manufacturers of new frozen food products often defeat their own purpose by attempting to bypass the broker in arranging for distribution. Yet, whereas a progressive broker who is really interested in the product may be a major contributor to market development, a broker who is only mildly interested is apt to do almost nothing and eventually drop the new product in face of limited distribution. Much of the initial mainland market development for both retail and institutional sales of frozen passion fruit juice can be credited to brokers who have had confidence in the future of the passion fruit industry and have been willing to contribute time and funds far in excess of what would have been justified on the basis of short-run returns alone. Other brokers have done almost nothing with the product. The importance of selecting reliable and interested brokerage firms cannot be overemphasized.

Where the retail store is expected to be the primary outlet, it is important to select brokerage firms with interest in retail as well as institutional outlets. It has been the observation of the writer that brokers catering primarily to institutional outlets may fail to take full advantage of developing retail outlets. It may be desirable to employ the services of both institutional and retail brokers.

The customary charge of the major broker amounts to a 4 to 6 percent markup on the wholesale value of the product. Where the major broker is dealing with retail brokers or brokers in other areas, an additional markup of 4 to 6 percent usually results.

[4] *Quick Frozen Foods,* August, 1956, page 86; and *Food Field Reporter,* October 15, 1956, page 54.

Motivation of Sales Representatives

In obtaining distribution in mainland test areas, the need for a knowledge of the product on the part of brokers and distributor salesmen is readily apparent. The more a salesman knows about a new product the more likely he is to acquire an interest in it himself. And certainly an enthusiastic salesman is more apt to gain store placement for his product. The education of sales representatives as to the value of the product, regardless of how simple it might seem, is a vital step in successfully developing the market for frozen passion fruit juice.

In instituting promotional programs, every effort should be made to inform all agencies concerned of the characteristics and uses of frozen passion fruit juice. This could be accomplished, in part, through distribution of brochures and by arranging meetings with sales representatives.

METHODS AND COSTS OF MAINLAND MARKET DEVELOPMENT

Procedure for Market Development

One of the greatest problems facing the new passion fruit industry is that of financing market development. It is essential for the industry to obtain a reasonable indication of both the probable cost of effective market development and the funds which could be made available toward that end. Within reason, the program of market development must be geared to the funds available. But there may be some justification for spending in excess of what is considered a reasonable advertising budget during the introductory period if benefits to follow are expected to be great enough.

To say that an advertising program for developing the mainland market for frozen passion fruit juice would cost a certain amount is meaningful only in light of the proposed method, the extent of development, and the timing in area-by-area development. Because of the relatively high cost of handling frozen foods at all levels of marketing, small volume movement over a wide area is not feasible. As mentioned earlier in this report, progressive store managers will not continue to stock a frozen juice concentrate unless it meets a certain minimum rate of movement out of the frozen food cabinet. This requires a type of advertising program which would cost far less per unit of sale with intensive distribution centered in metropolitan areas. Also, there is good evidence that it would cost far less per unit of sale in the long run to proceed with development of metropolitan areas in contrast with limited specialty distribution even though funds must be advanced for that purpose. Available research data indicate that a reliable estimate of costs of market development for the entire U. S. Mainland can be determined from an expansion of probable methods and costs of developing the market in selected metropolitan areas. In other words, what is true for individual metropolitan areas would be expected to apply to a greater or lesser degree to other areas of the Nation. Advertising in the metropolitan areas would be expected to gradually reach the less densely populated areas where the cost of market development per unit of sale is higher.

Upon the premise that the most logical approach to a study of methods and costs of market development is by metropolitan areas, the San Francisco Bay-San Jose Area was chosen for this purpose. This area was chosen because (1) it is compact and well provided with most types of advertising media, (2) passion fruit juice was already being distributed commercially, although on a limited basis, (3) California would logically provide the first major market for Hawaiian passion fruit juice, and (4) the cross section of population is reasonably comparable to that of a number of other metropolitan areas. Generalizations have been made from the Bay Area study to estimate probable costs of developing other segments of the mainland market. This approach, in fact, is the only one available where the objective is to obtain reliable estimates of probable costs of market development for a product which has not yet enjoyed general distribution.

As a basis for determining probable costs of market development for frozen passion fruit juice in the Bay Area, two approaches have been used:

(1) Twenty-five advertising agencies were consulted and asked to submit tentative reports on suggested plans of market development for the Bay Area, or in some instances, other metropolitan areas of California.

(2) Tests of response to experimental advertising programs were conducted in the San Francisco Bay-San Jose Area, Sacramento, and Redlands, California.

The following two sections include a brief appraisal of tentative proposals submitted by the advertising firms and a study of response to experimental advertising in test areas.

Based on a study of these two sources plus supplementary data on advertising of other products, a more precise estimate of probable costs of market development follows later in the report.

PROPOSALS BY ADVERTISING FIRMS

Twenty-five mainland advertising agencies were consulted concerning probable methods and costs of developing the mainland market for frozen passion fruit juice. The agencies were in unanimous agreement that the market could be developed at least cost through obtaining high levels of distribution in selected metropolitan areas and carrying out coordinated programs of market development area by area. The cost of promoting sales of a new product in areas of spotty distribution is high per unit of sale.

Media and costs of 15 market development programs suggested by 12 advertising firms are briefly summarized in table 1. The remainder of the agencies interviewed offered constructive suggestions but did not submit specific plans. Seven plans each were suggested for the San Francisco Bay Area and the Los Angeles Area. One plan was suggested for San Jose or Fresno. These reports varied from very sketchy programs developed during conferences with advertising executives to comprehensive plans submitted for consideration by the Hawaii passion fruit industry.

TABLE 1. Media and costs of market development for frozen passion fruit juice as proposed by 12 advertising firms, specified California metropolitan areas

AREA	AGENCY	RECOMMENDED MEDIA AND COST ALLOCATIONS	COST OF MARKET DEVELOPMENT DURING FIRST YEAR
San Francisco Bay (3,000,000 population)	A	*Plan 1. Moderate program, 13-week campaign* Television ..... $11,000 Radio (spot announcements) 5,000 Newspaper, display ..... 5,000 Merchandising 4,000	$25,000
		Plan 2. Minimum program, 13-week campaign Television ..... $ 6,600 Radio (spot announcements) 3,000 Newspaper, display ..... 3,000 Merchandising 2,400	$15,000
	B	Television ..... $ 6,060 Radio 12,140	$18,200
	C	*26 weeks of advertising during the year* Television ..... $ 3,600 Demonstrations ..... 1,000 Point-of-sale ..... 800 Transit signs ..... 2,400 Pub., field work, etc. 1,800	$ 9,600
	D	Newspaper, display (majority) First 3 months ..... $10,080 Also some store demonstrations Remaining 9 months 14,920	$25,000
	E	*Plan 1. Heavy program* Radio ..... $ 6,113.30 Newspaper ..... 26,893.00 Transit 10,120.50	$43,126.80
		Plan 2. Moderate program Radio ..... $ 2,788.50 Newspaper ..... 19,950.00 Transit 3,668.00	$26,406.50
		Plan 3. Minimum program Newspaper ..... $12,420.00 Transit 3,668.00	$16,088.00
	F	Newspaper (majority) Half-page color ads Other	$50,000
	G	Television ..... $ 8,750 Radio ..... 8,750 Newspaper 17,500	$35,000
Average, San Francisco Bay	All		$26,342
Los Angeles (6,000,000 population)	A	*Minimum, but effective program* Television ..... $ 13,200 Radio (spot announcements) 6,000 Newspaper ..... 6,000 Merchandising 4,800	$ 30,000

(Continued)

TABLE 1. *(Continued)*

AREA	AGENCY	RECOMMENDED MEDIA AND COST ALLOCATIONS		COST OF MARKET DEVELOPMENT DURING FIRST YEAR
	G	Television	$ 16,250	$ 65,000
		Radio	16,250	
		Newspaper	32,500	
	H	*Plan 1. Fair program*		$ 76,000
		Newspaper:		
		Sunday edition	$ 41,000	
		Other	11,000	
		Store demonstrations	8,000	
		Billboards	16,000	
		Plan 2. Conservative program		$ 50,000
		Newspaper:		
		Sunday edition	$ 27,000	
		Other	6,000	
		Store demonstrations	6,000	
		Billboards	11,000	
	I	Television (one ½-hour network show each week @ $2,000 per show)	$104,000	$104,000
	J	*Moderate program*		$ 90,000
		Television	$ 27,145	
		Radio	13,573	
		Newspaper	48,282	
		Store demonstrations	1,000	
	K	*Moderate program*		$ 60,000
		Television and outdoor	$ 33,000	
		Newspaper	27,000	
	L	Television	$100,000	$100,000
Average, Los Angeles	All			$ 71,875
San Jose or Fresno	A	*13-week initial campaign*		$ 2,000
		Television	$ 880	
		Radio (spot announcements)	400	
		Newspaper	400	
		Merchandising	320	

Diversity of Advertising Proposals

The plans for market development suggested by the advertising firms varied widely both as to costs and choice of media. Costs of what were considered by the agencies to be effective introductory plans for the San Francisco Bay Area ranged from $9,600 to $50,000. For Los Angeles the range was from $30,000 to $104,000. Part of the diversity in cost was due to differences in purpose. Plans in the low-cost category were considered minimum, but adequate; whereas some of the high-cost proposals were designed to bring about sales considerably in excess of what would be expected to be the required minimum. Yet, on the other hand, some of the high-cost plans were considered by their authors to be the minimum for a good job

of market development. As to media, some agencies recommended as best what other agencies excluded.

The range in cost among the various proposals suggests the need for careful evaluation of the merits of the alternative advertising programs and their effect on probable success or failure of the new passion fruit industry. It would seem logical, therefore, to study some of the differences and similarities of the various agency recommendations prior to determining a more precise estimate of probable costs of market development.

Advertising Allowance

The majority of the advertising specialists who were willing to make recommendations as to necessary advertising margins or budgets suggested 10 percent of the wholesale value of the product for the first year. One agency thought 5 percent of wholesale value of the product would suffice. Another thought as much as 15 percent of wholesale might be required and, although high, could probably be justified. Five percent of the wholesale value was considered to be reasonable after the introductory period.

Some of the agencies thought there would be justification for a slight overexpenditure the first year to insure high enough sales to encourage adoption by chain stores in other areas. On the other hand, excessive advertising might result in a picture of sales success which the price structure could not support.

Brand versus Non-Brand Advertising

Although non-brand advertising would appear to be the least discriminatory use of funds to be obtained from an industry-wide organization such as the Hawaii Passion Fruit Growers and Processors Association, some of the advertising firms emphasized the need for good brand advertising. They maintained that the failure of much industry advertising has been due to the fact that it was not backed up with adequate brand advertising. Insofar as the passion fruit industry is concerned this problem is complicated because of the prevalence of several relatively small firms, each with its own brand.

Promotion of One Product at a Time

A number of the advertising firms emphasized the desirability of promoting only one new product at a time. It was suggested that frozen passion fruit juice be introduced prior to guava, for example, because of the greater initial acceptance of passion fruit juice.

Choice of City for Initial Development

All advertising agencies agreed that a large California metropolitan area would offer the most logical choice for the first comprehensive market development program for frozen passion fruit juice. There was preference for the San Francisco Bay Area over the Los Angeles Area as the initial point of development for the following reasons: (1) The majority of the San Francisco Bay Area population forms a relatively more compact unit than does the population of Los Angeles; (2) Los Angeles is more saturated

with numerous television stations, radio stations, and newspapers than is the San Francisco Bay Area. Because of this it was thought that the cost of obtaining a per capita coverage equal to that of San Francisco would be relatively greater in Los Angeles; (3) Los Angeles seems to be a melting pot for new products, which increases the competitive situation and makes it more difficult to obtain heavy distribution than is true in the San Francisco Bay Area.

Also, more money would necessarily be required for the initial development if the Los Angeles Area were chosen because the population is almost twice that of the San Francisco Bay Area.

On the other hand, the per capita consumption of frozen passion fruit juice would be expected to be somewhat higher in Los Angeles because of the warmer weather. Also the fact that a greater percentage of Los Angeles food sales are through chain stores might be expected to result in less need for supervisory distribution than in the San Francisco Bay Area.

Even though the large city is considered the more efficient to develop on a cost per unit of sale basis, it was recommended that if sufficient funds were not available for developing a large city, a well-coordinated development of a smaller city would be the next best alternative.

Also, in the event that sufficient distribution cannot be obtained to support a promotional program for a certain city, the logical move is to apply the program, with necessary changes, to another city rather than waste the funds on limited distribution. Distribution should be assured before the program is launched.

Where a number of brands are involved it may be most feasible for each manufacturer to concentrate on separate metropolitan areas. Further study is needed on this important problem.

Timing of Promotional Program

All of the advertising firms suggested a promotional program in which the major advertising impact is coordinated with the introduction of the product. This is true not only because the returns from the advertising would be expected to be greater per unit of sale with this timing, but also because the guarantee of a heavy initial program is more apt to insure distribution. An intensive 13-week introductory campaign was suggested by the majority of the firms consulted.

EVALUATION OF MEDIA

Importance of Proper Media Selection

The particular media selected have an important bearing on cost of advertising per unit of sale. Two advertising programs of the same cost but with different combinations of media could very well have quite different impacts on the sales of a particular product. The most effective media for one product are not necessarily the most effective for another.

Advertising firms, in developing plans for promoting new products, often rely upon programs which have been considered effective for similar, but established, products. The advertising firm, being in business for profit,

is usually not in a position to conduct experimental tests of response to individual media over a period of months prior to launching an advertising program for each new product. Most advertising in almost any form can be expected to have some effect on sales and, up to a certain point, the more money spent on the selected media the greater will be the impact on sales. But where the advertising firm is not in a position to measure response to individual media, it cannot be expected to provide precise data for determining the point beyond which additional advertising would not be profitable.

The extreme variation among advertising firms in choice of media and projection of costs in table 1 illustrates the need for careful screening of proposed programs by the clients. As previously indicated, the difference in costs in table 1 could well determine the success or failure of the new passion fruit industry.

Because of the importance of proper media selection and because of the apparent need for an objective study of response to media, the Department of Agricultural Economics of the Hawaii Agricultural Experiment Station has measured response to various advertising media in mainland test cities where studies were in progress for determining the market potential of frozen passion fruit juice. It has not been the purpose of this study to design a comprehensive advertising program for frozen passion fruit juice but to obtain some indication of response to media and probable costs of an advertising program as a guide to the passion fruit industry in planning for market development. It is hoped that the analysis of individual media will better enable the industry representatives to choose an advertising program which is best suited to their purpose in light of funds available.

Television Advertising

There was considerable difference of opinion among the advertising firms as to the desirability of using television for introducing a new food product. Two of the firms suggested exclusive use of television in the form of network shows. The consultants representing three firms were of the opinion that any form of television advertising would be too costly for area-by-area introduction of frozen passion fruit juice. The majority recommended varying amounts of spot television advertising in combinations with other media. With such a divergence of opinion, there was need for an objective evaluation of the probable effectiveness of television. As a means to this end, the Hawaii Agricultural Experiment Station, utilizing funds provided in part by the Territorial Economic Planning and Coordination Authority, conducted a limited program of tests of response to experimental advertising in the San Francisco Bay-San Jose Area.

A 50-second color film was made in Hawaii to be used during 60-second channel breaks over KRON-TV in San Francisco. The film, supplemented with live announcements, was shown 13 times during a 24-week period; 11 times during a movie break at 4 to 5 p.m.; and twice during a late evening movie break. Resultant increases in sales were recorded for test markets in which sales of frozen passion fruit juice had been recorded for

nine months prior to the experimental advertising. The apparent effect of the television advertising on sales in selected test markets is shown graphically in figure 1. It is readily apparent that each of the three groupings of the one-minute advertisements had a marked effect on sales. The pattern of increase in sales was similar for all test markets. An attempt to measure the significance of the apparent increase in sales resulting from the television advertising is presented in table 2.

Weekly sales in the test markets during the entire 26-week test advertising period averaged 5.6 times as great as during the preceding 36 weeks, ranging from 3.4 times as great for market C to 7.8 times as great for market B. Average sales of less than a third of a case per week during the preceding 36 weeks were not great enough to justify space in the frozen food cabinets. Sales in all stores during and immediately following the television advertising were considered more than adequate by the store managers. Store D in which frozen passion fruit juice was stocked for the first time at the beginning of the television advertising program maintained higher sales than the average of the other three; but it was a larger than average supermarket and served an exclusive high-income district. The other three stores, collectively, were considered to serve a representative cross section of the population. A similar pattern of sales was observed in a number of other Bay Area markets. However, data from these other stores were obtained only in the form of orders of frozen passion fruit juice and were not usable for determining a precise measure of response to TV spot announcements.

Inasmuch as sales in all of the test markets followed a similar pattern in response to television advertising and were comparable in other respects to stores in Redlands, California, where a market potential test has been in progress since May 1955, there appears to be justification for expanding the data in order to illustrate the probable impact which a similar television program might have at different levels of distribution.

Distribution and demand in the San Francisco Bay-San Jose Area sufficient to bring about per capita sales comparable to those in Redlands is assumed in column 7 of table 2.[5] This would require approximately 400 supermarkets of test store types A and B and 200 superettes of type C. With no advertising other than initial store demonstrations and point-of-sale material, annual sales of only 8,944 cases with a retail value of $45,077 could be expected. With spot television advertising comparable to that during the 26-week test period but expanded to include an additional 26 weeks, sales could be expected to amount to 49,712 cases with a retail value of $250,548 or 5.56 times the amount which would have been attained on the basis of annual sales at the rate attained without television advertising.

The $3,924 advertising program with distribution at the 600-store level would have cost only 7.9 cents per case of 24 6-ounce cans or one-third of

[5]Scott, Frank S., Jr., *Frozen Passion Fruit Juice—An Appraisal of the Mainland Market Potential*, Agricultural Economics Report 25, Hawaii Agricultural Experiment Station, December, 1955.

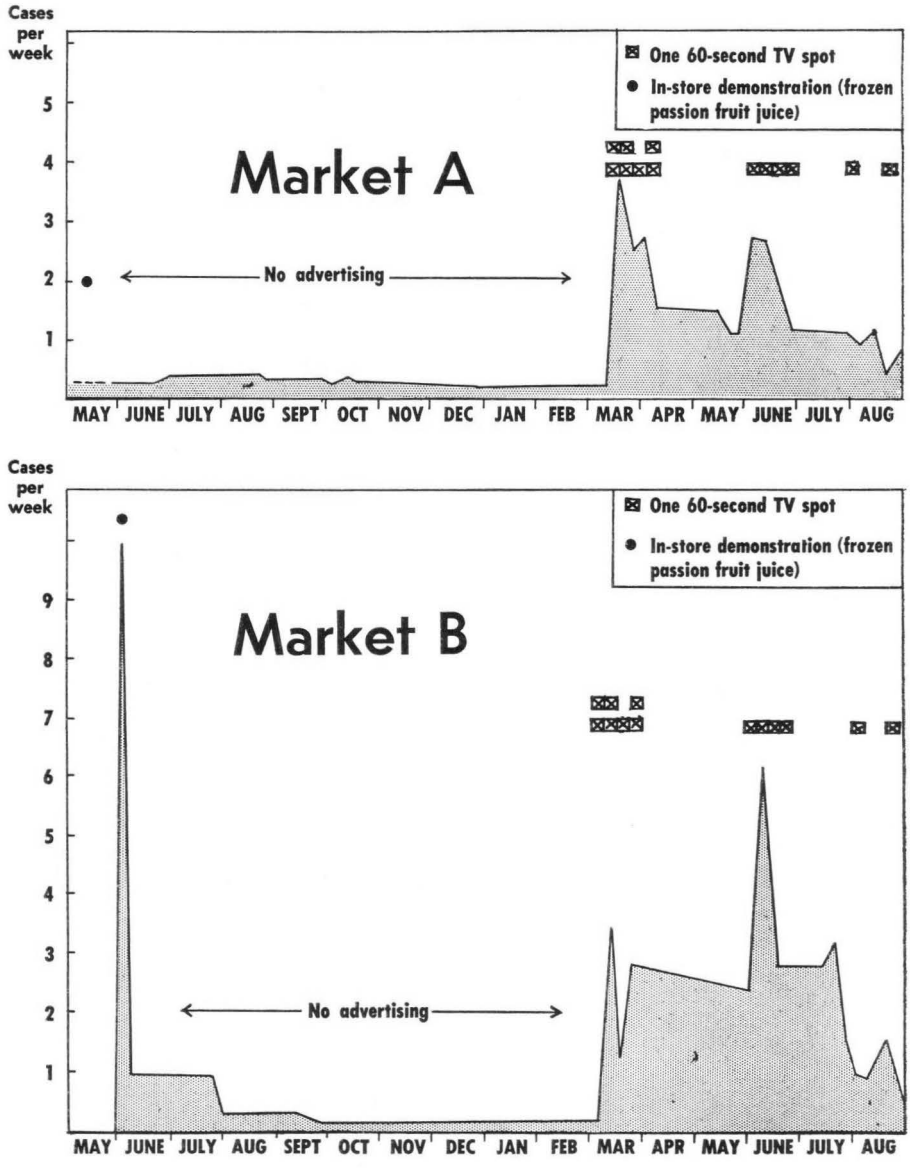

FIGURE 1. Response to television advertising, frozen passion fruit juice, San Francisco Bay-San Jose Area, California, March–September, 1957.

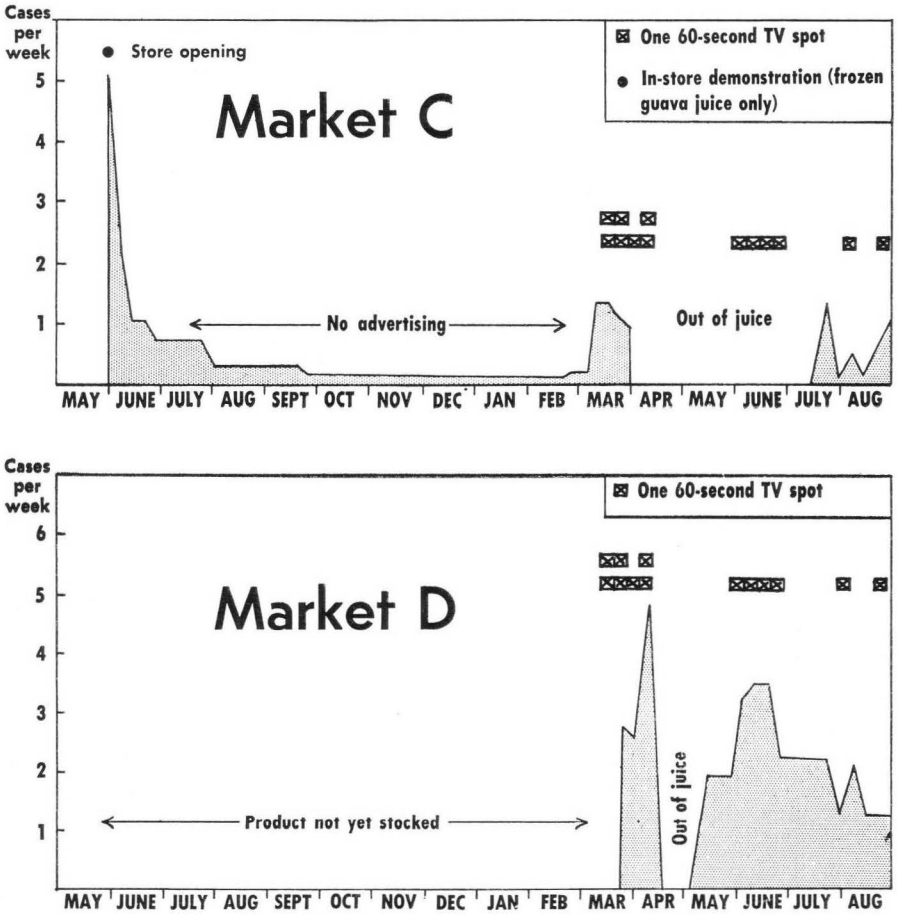

FIGURE 1. *(Continued).*

TABLE 2. Response to television advertising, frozen passion fruit juice, San Francisco Bay-San Jose Area, California, March—September, 1957

1	2	3	4	5	6	7	8	9
Item	Market A (large)	Market B (large)	Market C (medium)	Market D (large)	Markets A, B, and C	Entire Bay-Peninsula Area (assuming good distribution), 600 stores	Bay-Peninsula Area, 300 stores	Bay-Peninsula Area, 100 stores
Sales per week, 36 weeks preceding TV advertising (cases, 24 6-oz.)	0.32	0.32	0.22	....	0.86	172	86	29
Average sales per week, each week immediately following TV advertising (cases, 24 6-oz.)	2.09	2.63	1.02	2.94	5.74	1,148	574	191
Sales per week, 19 weeks during and following TV advertising (cases, 24 6-oz.)	1.55	2.49	0.74	2.33	4.78	956	478	159
Average quantity increase per store, each week immediately following TV advertising (cases, 24 6-oz.)	1.77	2.31	0.80	....	4.88	976	488	163
Ratio of weekly sales immediately following TV advertising to weekly sales during preceding 36 weeks	6.53	8.22	4.64	....	6.67	....	....	....
Quantity increase per store during and following TV advertising (cases, 24 6-oz.)	1.23	2.17	0.52	....	3.92	784	392	131
Ratio of weekly sales 19 weeks during and following TV advertising to weekly sales during preceding 36 weeks	4.84	7.78	3.36	....	5.56	....	....	....
Projected annual sales with no TV advertising (cases, 24 6-oz.)	16.64	16.64	11.44	....	44.72	8,944	4,472	1,491

TABLE 2. (*Continued*)

1	2	3	4	5	6	7	8	9
Item	Market A (large)	Market B (large)	Market C (medium)	Market D (large)	Markets A, B, and C	Entire Bay-Peninsula Area (assuming good distribution), 600 stores	Bay-Peninsula Area, 300 stores	Bay-Peninsula Area, 100 stores
Projected annual sales based on expansion of intermittent 26-week TV advertising (cases, 24 6-oz.)	80.60	129.48	38.48	121.16	248.56	49,712	24,856	8,285
Projected increase in sales resulting from TV advertising program (cases, 24 6-oz.)	63.96	112.84	27.04	----	203.84	40,768	20,384	6,795
Annual retail value of sales without TV ($5.04 per case)	$ 83.87	$ 83.87	$ 57.66	----	$ 225.39	$ 45,077.66	$ 22,538.83	$ 7,512.94
Annual retail value of sales with intermittent TV ($5.04 per case)	$406.22	$652.58	$193.94	----	$1,252.74	$250,548.48	$125,274.24	$41,758.08
Projected increase in value of sales resulting from TV advertising program	$322.35	$568.71	$136.28	----	$1,027.35	$205,470.82	$102,735.41	$34,245.14
Cost of TV advertising based on expansion of intermittent 26-week advertising test (including cost of point-of-sale material and part of film production costs)	----	----	----	----	----	$ 3,924.00	$ 3,924.00	$ 3,924.00
Cost of TV advertising per unit of sale (cases, 24 6-oz.)	----	----	----	----	----	7.9 ¢	15.79¢	47.37¢
Cost of TV advertising per 6-oz. can	----	----	----	----	----	0.33¢	0.66¢	1.98¢
Cost of TV advertising expressed as percentage of gross retail sales	----	----	----	----	----	1.57%	3.13%	9.39%

a cent per can and amounted to only 1.57 percent of estimated gross retail sales during the first year.

The aggregate cost of the television advertising program in a particular city would be expected to remain about the same regardless of the extent of distribution. Hence, the greater the distribution the lower would be the cost of advertising per unit of sale. For example, with placement in only 300 stores in the entire San Francisco Bay-San Jose Area, costs with the same television program as used with the more complete 600-store level of distribution would double. But even with this lower intensity of distribution, the television advertising cost would amount to only 3.13 percent of the value of retail sales. This is still lower than the 5 to 10 percent of the wholesale value of the product which could be justified according to the advertising agencies. Yet if the juice were placed in only 100 supermarkets and superettes in the Bay Area, estimated sales would be only $41,758 and advertising costs would amount to 9.4 percent of the value of retail sales. The cost of advertising at this level of distribution approaches the point where the net returns from it would be negative. There might, however, be some justification for instituting the advertising program for the 100-store level of distribution if it appeared likely that better distribution could be attained later and that costs of advertising per unit of sale would decline after the relatively high-cost period of introduction. The alternative would not be to reduce the television advertising program inasmuch as it is considered the minimum necessary to move the juice out of the frozen food cabinets at a rate high enough to justify the use of the space. The best procedure under these circumstances would be to obtain greater distribution even, in some instances, if the retailers demanded a more elaborate advertising program. A program costing twice as much for serving 300 markets would cost less per unit of sale than the expanded experimental program with distribution in only 100 markets. This does not mean to imply that the more elaborate program would necessarily yield greater net returns per dollar expended than would the experimental program at a given level of distribution. Its justification would be to obtain greater distribution where the cost per unit of sale for the greater distribution with the more elaborate program would be lower than the cost per unit of sale for limited distribution with the minimum program.

A definite indication as to whether or not the more elaborate program could be justified in preference to the minimum program for a *given level of distribution* would require a controlled study of sales response and a measurement of the comparative economy in producing, processing, and distributing at the resulting level of sales.

Also, there is need for testing over a longer period of time in order to compare the effectiveness of spot television in stimulating sales during the early phase of market development as compared with increasing sales in a market which is already reasonably well developed. This time factor is given consideration in following sections of this report where other media, tested under somewhat different timing patterns, are evaluated in relation to spot television.

Newspaper Advertising

All except three of the advertising agencies included some form of newspaper advertising in their suggested proposals for developing the mainland market for frozen passion fruit juice. There was considerable variation, however, as to the type of newspaper advertising recommended. The more elaborate programs included half or full page ads in metropolitan Sunday editions during the introductory period. Color ads were recommended more strongly for Los Angeles than for San Francisco. The agencies recommending the large advertisements suggested that they be followed by smaller display ads. Other agencies were of the opinion that small display ads ranging in size from 2 columns by 4 inches to 3 columns by 10 inches would do a good job for frozen passion fruit juice. Whereas some of the agencies suggested running the ads in the midweek food sections, others recommended non-food days. It was suggested by one agency that the ads be run in a small paper first, in order to obtain an indication of their effectiveness.

It is readily apparent that for newspaper advertising as well as for television advertising, there seems to be no established yardstick for determining what would be best for a new frozen juice concentrate.

The majority of the agencies advised against dependence on cooperative store advertising in the midweek food editions. The reasoning was (1) that the cooperative ad is only a reminder and doesn't mean much for a product with which consumers are unfamiliar, and (2) that store managers are apt to neglect the cooperative advertising for a particular product because of the large number of products handled in which some form of advertising allowance is provided.

Controlled tests of response to newspaper advertising carried out in Redlands, California, throw some light on the effectiveness of small and medium-sized display ads and cooperative advertising. The newspaper ads, as was true of television in the San Francisco Bay Area, were run separately from other media so that measurement could be obtained for the particular medium.

Consumers were introduced to frozen passion fruit juice in Redlands during May and June, 1955, primarily through store demonstrations. These demonstrations were considered too costly for commercial use, but served the purpose of providing a quick means of market development as a basis for estimating the market potential. Experimental newspaper advertising, except for that used simultaneously with the in-store demonstrations, was initiated after a substantial percentage of the people were familiar with the product. Hence, any increase in sales resulting from the newspaper advertising would not have been expected to be as great percentagewise as if the product had been introduced through that medium.

Newspaper advertising in Redlands, although it brought about increases in sales in most instances as shown in table 3, was costly per unit of sale for the particular type of advertising used. Display ads used during 1955 and 1956 were re-evaluated after appearing and considered too inconspicuous. A larger and more elaborate ad designed for tests during October

TABLE 3. Response to newspaper advertising, frozen passion fruit juice, Redlands, California, 1955–57

1	2	3	4	5	6	7	8	9
Date	Type of advertising	Allocation of cost	Ratio of sales during week advertised to sales per week during preceding 3 weeks	Ratio of sales during second week following ad to 3 weeks preceding ad	Ratio of sales during third week following ad to 3 weeks preceding ad	Ratio of sales during fourth week following ad to 3 weeks preceding ad	Ratio of sales during fifth week following ad to 3 weeks preceding ad	Ratio of sales during sixth week following ad to 3 weeks preceding ad
Nov. 16, 1955	Display, 6 column inches	All stores	1.37	1.21	.85	(In-store demonstration)	(In-store demonstration)	---
Nov. 2, 1955	Coop ad, one large market, 2 col. X 1 inch, 2/37¢/can (special)	One large store	1.89	1.50	1.34 (Display ad)	2.52	1.02	(In-store demonstration)
Aug. 23, 24, 25, 1956	Display, 18 col. inches per day, 3 days	All stores	.61	.42	.76	.73	.65	.65
Oct. 23, 1957	Display, 28 col. inches, no cooperative advertising, point-of-sale or specials	All stores	1.96	.35	.76	---	---	---
Nov. 13, 1957	Display, 32 col. inches, plus listing of major stores at special 2/35¢, plus point-of-sale displays in all stores and 11-col.-inch coop ad by one large-volume store, Nov. 14	All stores	3.18	2.27	1.40	.70	1.00	1.78
Nov. 14, 1957	Coop ad, one large market supported by 32-col.-inch ad described above	One large store[a]	6.27	3.36	.54	1.63	1.18	.45

[a]Entire cost of cooperative ad charged against this market. Cost of display ad allocated in accordance with previous sales of frozen passion fruit juice in this store as compared with total sales in all Redlands stores.

TABLE 3. (*Continued*)

1	2	3	10	11	12	13	14	15	16
Date	Type of advertising	Allocation of cost	Ratio of sales 3 weeks following ad to 3 weeks preceding ad	Increase in sales per week 3 weeks following as compared with 3 weeks preceding ad (6-oz. cans)	Value of increase in sales per week (col. 11) @ 19¢/can	**Value of increase in sales during 3-week period following ad**	Cost of ads	Additional sales 3 weeks following minus cost of advertising	Value of additional sales, 9 weeks following, as compared with 9 weeks previous
Nov. 16, 1955	Display, 6 column inches	All stores	1.15	12.9	$ 2.45	**$ 7.35**	$ 5.88	+$ 1.47	---
Nov. 2, 1955	Coop ad, one large market, 2 col. X 1 inch, 2/37¢/can (special)	One large store	1.57	11.5	$ 2.19	**$ 6.57**	$ 1.96	+$ 4.61	---
Aug. 23, 24, 25, 1956	Display, 18 col. inches per day, 3 days	All stores	.60	No apparent effect	---	---	$54.18	No effect	---
Oct. 23, 1957	Display, 28 col. inches, no cooperative advertising, point-of-sale or specials	All stores	1.02	No apparent effect (unless the ad prevented sales from declining)	$ 0.06	**$ 0.19**	$31.36	−$31.17	$13.87
Nov. 13, 1957	Display, 32 col. inches, plus listing of major stores at special 2/35¢, plus point-of-sale displays in all stores and 11-col.-inch coop ad by one large-volume store, Nov. 14	All stores	2.28	70.4	$13.38	**$40.14**	$33.92 17.17 $51.09	−$10.95	---
Nov. 14, 1957	Coop ad, one large market supported by 32-col.-inch ad described above	One large store[a]	3.73	30.0	$ 5.70	**$17.10**	$17.16 + ¼ of $31.36 $25.00	−$ 7.90	---

[a]Entire cost of cooperative ad charged against this market. Cost of display ad allocated in accordance with previous sales of frozen passion fruit juice in this store as compared with total sales in all Redlands stores.

and November, 1957, was expected to attract most readers of the *Redlands Facts,* which reaches most of the homes in the area. The latter advertisement had a marked effect on sales during the week immediately following the ad, but sales dropped back to near the pre-ad level during following weeks. A November 13 ad was supported by a list of stores, a special price of 2 cans for 35 cents, point-of-sale material in all stores, and cooperative advertising by one large-volume store. This display ad with supporting promotion was far more effective than the same ad on October 23 without the special price and supporting advertising.

The particular newspaper ads under these conditions were obviously too costly for frequent use. The value of additional sales apparently resulting from the advertising during the three weeks following the ads is compared with the costs of the ads in table 3. Even for this period, the cost of the ad in most instances exceeded the value of the additional sales resulting therefrom. For the October 23 ad, the cost of advertising exceeded the value of additional sales during the following three weeks by $31.17. The cost of the November 13 ads exceeded the value of additional sales during the following three weeks by $10.95. By taking into consideration the concurrent effects of both the October 23 ad and the November 13 ads and comparing the nine-week period following the former with the nine-week period preceding, the cost of the advertising exceeded the additional sales by $68.57. An expansion of this particular program throughout the year would, from all indications, only increase the disparity between additional returns and costs of advertising.

The newspaper advertising might have been more effective if used in a different manner at a different time of year. After two and one-half years of exposure to the product, there is good indication that consumers were using about as much of the juice as they wanted and the demand had become less elastic than during the earlier phases of market development. There is need for more comprehensive testing of newspaper advertising as an initial medium for introducing frozen passion fruit juice.

The cost of newspaper advertising per unit of sale in large metropolitan areas is, in most instances, less than that in small cities. For example, the base rate per column inch for the combined circulation of four San Francisco metropolitan dailies is $40.75 as compared with the $1.06 for the *Redlands Facts.* Yet the base charge per column inch per 1,000 copies circulated is only 5.9 cents for the San Francisco papers as compared with approximately 21 cents for the *Redlands Facts.*

The number of metropolitan newspapers in cities of equal size also has an important bearing on costs of advertising per person contacted. This is a problem in the Los Angeles metropolitan area where, in addition to the metropolitan dailies, there are a number of papers published in smaller cities within the metropolitan area.

Radio Advertising

Only 4 of the 12 advertising firms recommended the use of radio in an initial advertising campaign for frozen passion fruit juice. The general concensus seemed to be that spot radio would not serve the educational

function necessary in familiarizing consumers with a new product. Network programs would be too costly, of course, until the product enjoys wider distribution. Home economics programs and special programs on the product and its Hawaiian setting were suggested by those who did recommend radio.

A spot radio advertising program was carried out in Redlands, California, during the spring of 1957 after frozen passion fruit juice had been on sale for two years. One 50-second and two 30-second recordings were alternated for a total of 15 spots per week for four weeks during the last three weeks in May and the first week in June. No other advertising of frozen passion fruit juice was in effect at that time. The spots were scheduled near local news broadcasts and at other times of good ratings. Response to the $147 program is shown in table 4. Total sales of frozen passion fruit juice were 1.69 times as great during the four weeks of advertising as during the four weeks preceding. They were 2.78 times as great during the four weeks of advertising plus the four weeks following as during the eight weeks preceding the advertising. Since sales did not increase appreciably at this time during the previous year in spite of the advent of warmer weather, it appears that the increase in sales can be attributed at least in part to the radio advertising. Yet the $147 invested in spot radio announcements was equal to 84.7 percent of the value of the increase in sales during the eight weeks following the initiation of the program and 13.6 percent of the total retail value of passion fruit sales in the test city during 1957. Thus, although radio apparently resulted in an increase in sales, the cost of the advertising per unit of sale was high. A different program might have brought about somewhat different results at that time but the probability is that it would not have. A less intensive radio advertising program, such as one spot per day instead of five, would probably have had less effect on sales but might well have brought about a greater increase in sales per dollar of radio advertising. Also, the value of sales per dollar of radio advertising would undoubtedly have been greater during the introductory period than at a time when the product had already been on sale for two years. There is need for further research in which sufficient funds are available to permit testing with varying programs and costs.

As is true in the case of newspaper advertising, the radio advertising would be expected to cost less per unit of sale in the large metropolitan centers providing that the larger cities are not unduly saturated with radio stations.

Store Demonstrations

The majority of the advertising firms considered store demonstrations too expensive for general use. Most of the others thought there would be justification for demonstrations in a few of the major stores in each metropolitan area. One firm considered the store demonstration a good and not too costly means of introducing a new frozen juice concentrate.

Demonstrations at State and County Fairs, conventions and other similar functions were recommended.

TABLE 4. Response to radio advertising, frozen passion fruit juice, Redlands, California, May–June, 1957

1	2	3	4	5	6	7	8	9	10	11
Store	Sales 4 weeks prior to advertising	Sales per week, 4 weeks prior to advertising	Sales 4 weeks during advertising	Sales per week during advertising	Increase col. 4 over col. 2	Ratio of col. 4 to col. 2	Sales 8 weeks preceding advertising	Sales 8 weeks during and following advertising	Increase col. 9 over col. 8	Ratio of col. 9 to col. 8
	6-oz. cans	*6-oz. cans*	*6-oz. cans*	*6-oz. cans*	*6-oz. cans*		*6-oz. cans*	*6-oz. cans*	*6-oz. cans*	
A	134	33.5	182	45.5	48	1.36	177	558	381	3.15
B	26	6.5	89	22.3	63	3.42	60	115	55	1.92
C	54	13.5	78	19.5	24	1.44	59[a]	211	152	3.58
D	48	12.0	100	25.0	52	2.08	90	162	72	1.80
Stores A, B, C, and D, plus all others in test area	354	88.5	598	149.5	244	1.69	520	1,448	928	2.78

[a]Out of juice for three weeks.

The store demonstration was used as the primary method of introducing frozen passion fruit juice in Redlands, California, in order to provide a means of measuring consumer response to taste and to familiarize consumers with the product for obtaining an early estimate of the market potential. Intensive use of this method of promotion would not have been recommended for commercial introduction for reasons indicated in the following analysis.

In introducing frozen passion fruit juice in Redlands, samples were distributed to 2,533 customers in three supermarkets and 719 in two smaller stores as shown in table 5. This amounted to a total of 3,252 contacts including duplicates. Sales amounted to 661 cans or 27.5 cases during demonstrations. Since the majority of the customers who sampled the juice were not accompanied by families, the 3,252 people contacted would be expected to have considerable bearing on future purchases by the 5,500 families in the test city. Sales held up well after the initial demonstrations. Average sales per week for the four weeks following the demonstrations were 38 percent as high as during the demonstrations. Average weekly sales during the entire first year were 18 percent as high as during the introductory week with no additional advertising except for repeat demonstrations in stores A and B and a small amount of newspaper advertising. Store D, which received only an initial 2-day demonstration the first year, maintained a weekly level of sales during the first year equal to 16.8 percent of the demonstration level.

Average weekly sales during the entire first year were 46 percent as high as those during the first four weeks and 69 percent as high as those during the first 12 weeks.

The above data indicate rather conclusively that the store demonstration is an effective means of familiarizing consumers with frozen passion fruit juice. But in comparing costs of this method of promotion with resulting sales, it is apparent that the cost per unit of resulting sales is high. Cost of the initial demonstrations for the three stores in table 5 amounted to almost 11 percent of total sales during the first year and 7.4 percent of total sales during the first two years. Total cost of advertising during the first year including a December demonstration for each of two of the stores plus newspaper advertising amounted to 18.8 percent of total sales during the first year. The second period of demonstrations was relatively ineffective as compared with the introductory period and it is likely that sales would have maintained almost the same level without the additional demonstrations.

If the only promotion during the first two years had been the initial demonstrations and sales had continued at about the same level as with some additional advertising, the 7.4 percent of sales for the two-year period is still high but could be justified. With only these data available, it is not possible to determine how much sales would have declined had there been no additional promotion, but an evaluation of the apparent effectiveness of the additional store demonstrations plus the small amount of newspaper advertising indicates that the decline would not have been great.

TABLE 5. Response to store demonstrations, frozen passion fruit juice, Redlands, California, May 1955 through April 1957

Store	Dates of demonstrations	Total sales during 2-day demonstration	Sales first week following demonstration	Sales per week 4 weeks following demonstration	Sales per week 12 weeks following demonstration	Sales per week first year	Value of sales first year @ 21¢/can	Cost of first demonstration (including juice)	Percent cost of first demonstration was of value of retail sales during first year
		6-oz. cans	*6-oz. cans*	*6-oz. cans*	*6-oz. cans*	*6-oz. cans*	*Dollars*	*Dollars*	*Percent*
A Large independent	May 6–7	249	188	129.0	58.6	36.7	400.89	38.50	9.6
	Dec. 9–10	55	21	18.5	16.1				
B Regional chain	May 20–21	143	49	54.5	49.3	33.8	369.39	38.50	10.4
	Dec. 9–10	109	36	18.8	17.9				
D National chain	May 6–7	160	57	26.8	34.0	26.9	293.37	38.50	13.1
Total, stores A,B,D		552	294	210.3	141.8	97.4	1,063.65	115.50	10.9
Average, stores A,B,D		184	98	70.1	47.3	32.5	354.55	38.50	10.9

TABLE 5. (*Continued*)

Store	Total cost of advertising first year demonstration and newspaper[a]	Percent total advertising cost was of retail sales during first year	Total sales first 2 years	Value of total sales during first 2 years	Total cost of advertising first 2 years[a]	Percent total advertising cost was of retail sales during first 2 years	Percent cost of first demonstration was of retail sales during first 2 years	Cost per store if TV had been used (from Los Angeles)[b]	Percent TV advertising would have been of sales during first year
	Dollars	*Percent*	*6-oz. cans*	*Dollars*	*Dollars*	*Percent*	*Percent*	*Dollars*	*Percent*
A	78.58	19.6	2,689	564.69	93.71	16.6	6.8	6.50	1.62
B	81.19	22.0	2,862	601.02	94.74	15.8	6.4	6.50	1.76
D	40.08	13.7	1,895	397.95	55.21	13.9	9.7	6.50	2.21
Total	199.85	18.8	7,446	1,563.66	243.66	15.6	7.4	19.50	1.25
Av.	66.62	18.8	2,482	521.22	81.22	15.6	7.4	6.50	1.25

[a]Allocation of newspaper and radio advertising cost per store

Store	1955	1956	Total 1955 + 1956
A	$1.58	$13.55	$15.13
B	4.19	13.55	17.74
D	1.58	13.55	15.13

[b]Based on San Francisco Bay-San Jose experimental program prorated on basis of intensive distribution in the Los Angeles metropolitan area. Redlands is served by Los Angeles television stations.

It is apparent in table 5 that the impact of store demonstrations during the introductory period was far greater than after the market had already been reasonably well developed. Hence, there appears to be some justification for demonstrations in the larger markets during the introductory period but no economic justification for demonstrations after the majority of potential customers are familiarized with the product. This applies to product advertising only. The situation may be somewhat different in competitive advertising among brands, where a brand must be advertised to maintain its share of the market.

But even though there appears to be justification for demonstrations in some of the larger markets, it should be kept in mind that the cost of a store demonstration must be charged largely to sales in one store and that the cost of most other media can be prorated among a number of stores. For example, the television advertising in the San Francisco Bay-San Jose Area could be applied costwise to the Los Angeles Area, assuming the highest level of distribution in table 2, the first year's level of sales in Redlands could have been attained through television at only 1.25 percent of the value of product sales at the retail level. This compares with 10.9 percent of the retail value with only one 2-day demonstration and no supporting advertising in two-thirds of the major markets.

Cabinet Display and Point-of-Sale

Cabinet display had a marked effect on sales of frozen passion fruit juice in all test stores observed. With a display of two full rows, for example, the customer is much more likely to observe the new product than if it is given half a row in back of another juice or is buried beneath other juices in cabinets where the rows of frozen foods are not kept in order.

Point-of-sale posters, especially where the product is being offered at a special price, have an important bearing on sales. Although the impact of these factors on sales was observed in a number of different stores, specific quantitative measurements were not obtained. This is an area of research which deserves more attention. Good display might well yield the greatest benefit per unit of sale of any form of promotion even though it must be supplemented with other forms of advertising in order for frozen passion fruit juice to meet minimum sales requirements at the retail level. It is usually the intent of the progressive retailer to allocate space according to expected volume of sales. Yet there may be no opportunity to demonstrate what the new product, pushed back of another product in half a row, would do if given two full rows. Good display of both the product and point-of-sale material is highly dependent upon supervision by industry representatives as well as retailers. With many products bidding for space, the distributor who is there to convince the retailer of the desirability of maintaining an adequate display for his product is most apt to get it.

It has been the observation of the writer that distributors handling frozen passion fruit juice in addition to a line of better-known products are inclined to devote most of their effort to the "old line" products for which they can be sure of good movement. Many businessmen believe that

they cannot afford the luxury of experimenting with or taking a chance on new products.

Another point-of-sale characteristic which is very important and can be improved by the processors themselves is the retail label. The label of a 6-ounce can with the side of the cylinder facing the shopper must be readily observed in that position. The name of the product is more important than the brand name in the case of an unknown brand. A number of brands of frozen juice concentrates are now coming out with horizontal labels which can be readily observed in the frozen food cabinet.

Magazine Advertisements

Prominent advertisements in certain types of magazines might be an effective means of familiarizing consumers with frozen passion fruit juice. But with limited distribution such advertisements would be costly in relation to sales. On the West Coast, such a magazine as *Sunset* might well provide an effective and economical means of increasing sales once good distribution is obtained in that area. Until then, media should be pretty well limited to those serving the individual metropolitan area which is being developed.

A story of the industry in a national magazine might be a very effective means of increasing both distribution and consumer interest in the product.

Billboards

Outdoor advertising was recommended by some of the agencies, particularly for Southern California where a large percentage of the people must commute great distances to work. This type of advertising would be expected to be less effective for a more compact metropolitan area such as San Francisco.

Streetcar and Bus Cards

Streetcar and bus cards have proved to be extremely effective in promoting new frozen food products in compact San Francisco where public transportation receives relatively good patronage. These media would be expected to be less effective in Los Angeles which is much less compact and where private automobiles are relatively more important as a means of commuting to work.

Contests

The fact that passion fruit juice is an exotic tropical product from Hawaii makes it a "natural" for sales incentive programs. The most frequent suggestion along this line is to set up a contest in which the reward is a free "package trip" to Hawaii. A sales "gimmick" such as this might well prove to be a low-cost method of promoting this particular product. There is no doubt but what its presentation in the form of newspaper display ads, spot television, or spot radio would increase the effectiveness of these media.

Product Improvement

Regardless of the particular advertising media used, the quality of the product has an important bearing on sales. Previous research has indicated a strong sensitivity to sugar-juice ratio and extent of dilution for frozen passion fruit juice.[6] Even though the frozen passion fruit juice concentrate may be composed of what is considered the most acceptable sugar-juice ratio with recommendation for proper dilution, there may be opportunity for further improvement as a means of increasing market acceptance. The most significant improvement on a laboratory basis has been the addition of a sufficient amount of acerola cherry juice to increase the vitamin C content of the diluted product to a level at least equal to that of orange juice. Inasmuch as the acerola cherry contains upwards of 40 times as much vitamin C as oranges, only a small portion of the cherry juice is needed to bring the vitamin C content of passion fruit up to the desired level. Furthermore, the small amount of acerola cherry juice improves both the color and the flavor of the passion fruit juice. With opportunity for advertising the passion fruit-acerola cherry juice blend as being naturally high in vitamin C, it seems evident that there would be both an increase in sales and a decrease in the cost of advertising per unit of sale.

The acerola cherry, although new as a commercial crop in Hawaii, seems adaptable to Hawaiian conditions. There is need, however, for a study of the economic feasibility of acerola cherry production in Hawaii before it can be assumed to be readily available as a blend for frozen passion fruit juice. As an alternative, there would seem to be justification for fortifying the passion fruit juice with ascorbic acid in order to bring the vitamin C content of the diluted juice up to a level competitive with that of orange juice.

DERIVED PLAN OF MARKET DEVELOPMENT

In order to obtain a more precise indication of probable costs and methods of market development, the plan as shown in table 6 has been derived from experimental advertising plus the reports provided by the advertising firms. It is designed to serve as a general guide and not necessarily as a precise plan of development for any particular area.

The plans suggested by the advertising firms are tentative and based largely upon experience with other products and not upon tests of response to advertising frozen passion fruit juice. The extreme range in costs among the different plans poses a problem in deriving a precise estimate of probable costs of market development. Experimental advertising in the San Francisco Bay-San Jose Area indicates that a television promotional program sufficient to at least meet the minimum required movement out of the frozen food cabinets would cost about $4,000 as indicated in table 2. Television was by far the most effective medium in the test areas. Furthermore, it was the only medium which brought about above-minimum sales

[6]Scott, Frank S., Jr., *Consumer Preferences for Frozen Passion Fruit Juice*, Agricultural Economics Report 29, Hawaii Agricultural Experiment Station, December, 1956.

TABLE 6. Proposed market development program for frozen passion fruit juice based on experimental advertising, San Francisco Bay-San Jose Area, California[a]

MEDIA	DESCRIPTION	ANNUAL COST	PERCENT OF TOTAL
Television	Two 13-week periods of 60-second announcements at one per week on 2 channels (total of 52 announcements at $125)	$ 6,500	54.2
Radio	One 13-week period of 60-second announcements	1,560	13.0
Newspaper	Articles in Food Sections and display advertising	1,000	8.3
Store demonstrations	40 at $25	1,000	8.3
Point-of-sale, production costs, and miscellaneous		1,940[b]	16.2
Total		$12,000	100.0

[a]Including transit signs for San Francisco but not necessarily for other metropolitan areas.
[b]Designed for application to other metropolitan areas with allowances for differences in advertising media and size and characteristics of the population.

at a cost of less than 5 percent of gross retail value when expanded to an annual basis.

It should be kept in mind that minimum sales in this instance do not imply a low level of sales but a fairly substantial level which is necessary to justify the high cost of space in the frozen food cabinet. Since the present cost structure for frozen passion fruit juice does not seem to permit a higher than average retail markup for partially offsetting slow movement, a good rate of turnover would seem to be a necessity.

Although experimental advertising in the test areas indicates that $4,000 would bring about at least enough movement to retain cabinet placement once it is attained in the San Francisco Bay Area, there are important reasons why a somewhat stronger program should be used, particularly in the first major metropolitan area to be developed:

(1) It would be far better to put a little too much money into advertising, even though the additional sales may not justify it, than to fail to provide enough and suffer a consequent loss of the market.

(2) Success of the product in the initial areas of coordinated market development would be expected to have an important influence on brokers, distributors, and, to some extent, retailers in other areas. A market failure in San Francisco in spite of good distribution would be a setback to the industry even if it were a failure which could have been avoided through use of a different approach to market development. On the other hand, a promotional program costing far in excess of what the industry can bear would mislead the marketing institutions and burden the industry with an outlay which might well be impossible to offset through future sales. Overspending on advertising with resulting high sales in the initial area

of concentrated market development could not be expected to continue indefinitely.

Experience in test markets has indicated, furthermore, that whereas a reasonably good level of sales can be obtained at a relatively low advertising cost, the cost of stimulating sales beyond that level is high per unit of sale. Thus, it might very well be that the passion fruit industry will have to be resigned to a certain level of sales in relation to competing products because the cost of improving the competitive position is prohibitive. There is no reason to believe that the high-cost programs in table 1 would result in an appreciable increase in sales over the minimum or moderate programs.

Faced with a limited budget for market development which plagues most new industries, it seems that the most logical approach to this problem would be to design a program which is somewhat above the minimum cost but not exorbitant. The program could later be expanded as the development of the market progresses if there appears to be justification for doing so in light of sales response.

Taking the above factors into consideration, a $12,000 program based largely on 60-second spot television would seem to be a logical start for the San Francisco Bay Area. This program as suggested by the writer in table 6 slightly exceeds the cost of the least expensive of the programs submitted by the advertising firms for development of the San Francisco Bay Area. It would be beamed at a population of roughly 3,000,000 people. Programs for other metropolitan areas might require a somewhat different cost per capita and perhaps a different weighting of media. But the San Francisco Bay program is expected to provide a good indication as to what it will cost proportionately to develop the market in other metropolitan areas. The San Francisco Bay program, or that of whichever city is chosen first, should receive detailed study after it is put into effect. It should then be possible, in light of that experience, to design better market development programs for other metropolitan areas.

The suggested program has been built around 60-second television announcements which this research has indicated to be the most effective medium for introducing frozen passion fruit juice. Although it would be unwise to spread the advertising budget among a large number of media, a certain amount of newspaper and radio advertising would be considered advantageous not only from the standpoint of direct consumer response but also because of assistance in merchandising provided by newspapers and radio stations. Thirteen percent of the cost of the program has been allocated to radio and 8 percent to newspapers.

The plan provides for 40 in-store demonstrations for a limited number of key markets. If two-day demonstrations are used this would provide in-store promotions for only 20 stores. Further research is needed to determine whether the best use of funds can be obtained through demonstrations of two days per store, as is customary, or one-day demonstrations for twice as many stores. Eight percent of the developmental program has been allocated to this medium.

The remaining 16 percent of the cost of the program includes allowances for point-of-sale material, production costs, and some flexibility for special media, such as transit signs, which would be effective only in certain cities.

Development of the passion fruit market would be expected to be more expensive per capita in the small cities and in the rural areas than in the large metropolitan centers. The majority of the United States population is concentrated in the large metropolitan areas and by the time the market is developed in those areas a certain amount of the promotional effort in the metropolitan areas will have reached communities where the population is less concentrated.

Areas which are less expensive to develop per unit of sale should logically receive first consideration. As the market is further developed in keeping with expansion in production, more data will become available for promoting the product in yet undeveloped areas.

PRICE STRUCTURE

Preliminary studies of the cost structure for producing, processing, and marketing frozen passion fruit juice indicate that it can be retailed in California at a price of 19 to 21 cents per can, depending on the type of distribution and the retail markup. This price range is competitive with that of higher-priced orange juice and grape juice concentrates but higher than that for most other frozen juice products. There are indications that a retail price of 19 cents for frozen passion fruit juice would not be high enough to allow a sufficient advertising margin to finance the market development program suggested in table 6 in light of current costs. From all indications the 21-cent price would allow a sufficient advertising margin.

Sales tests have indicated that consumers are highly sensitive to the price of passion fruit juice and that considerably more could be sold at 19 cents than at 21 cents. A given advertising program would cost less per unit of sale if the product were sold at 19 cents than if it were sold at 21 cents. But experience has also indicated that without promotion even at a price as low as 2 for 35 cents, the volume of sales is not sufficient to justify space in the frozen food cabinets. Thus, there is need for determining the combination of price and advertising allowance which would at least meet the required minimum movement out of the frozen food cabinets and at the same time return the maximum aggregate net profit for the passion fruit processing firms involved.

Research on costs of processing at various levels of operation is now in progress. This study, when completed, is expected to provide a more exact basis for correlating the price-cost structure and advertising costs.

OBTAINING FUNDS FOR ADVERTISING AND PROMOTION

One acre of passion fruit will provide enough juice for approximately 630 cases of juice packed with 24 6-ounce cans per case. This is based on an average passion fruit yield of 15,000 pounds per acre, a juice yield of 30 percent, and a requirement of 7.14 pounds of actual juice per case. At

this rate it would require an estimated 79 acres annually to supply enough frozen passion fruit juice for sale in 6-ounce cans through 600 Bay Area stores and with the television advertising program shown in table 2.

As indicated in table 2, an advertising margin of one-third of a cent per 6-ounce can or 7.9 cents per case of 24 6-ounce cans would be expected to provide sufficient funds to meet minimum requirements for movement out of the frozen food cabinets. The more secure $12,000 program suggested in table 6 would require an outlay margin of 24.1 cents per case of 24 6-ounce cans or 1 cent per 6-ounce can with distribution in 600 Bay Area supermarkets and superettes at the level indicated through expansion of the results of the experimental television advertising. Actually, the $12,000 program, which is three times as costly as the experimental television program, would be expected to bring about sales at a considerably higher level than achieved by the minimum program. Hence, 24 cents per case would be expected to be the maximum cost for supporting the $12,000 program. On this basis, the expanded program would cost not more than 4.8 percent of gross retail sales. The greater the sales in excess of those indicated by the minimum program indicated in table 2, the less would be the advertising cost per unit of sale.

With limited distribution in only 300 or half the number of markets indicated above and faced with essentially the same advertising program, the cost would increase to 48 cents per case or 2 cents per 6-ounce can and amount to 9.6 percent of gross retail sales.

With good distribution, the cost of the advertising is within the margin which is considered feasible by advertising and industrial firms consulted. The same advertising program but with distribution at only the 300-store level might cost as much as 9.6 percent of gross retail sales during the first year and would approach the upper range of the margin which might be justified for market development.

The $12,000 promotional program with distribution in 600 stores would cost one cent per pound of passion fruit marketed. The money would have to be advanced for the first year's program as is almost always the case in developing the market for a new product. Collection of the 1 cent per pound advertising assessment could well be one of the functions of the recently formed Hawaii Passion Fruit Producers and Processors Association. Experience in other areas has indicated that to be administered effectively the program should be supported by a territorial marketing order. Territorial legislation permitting such a program has not yet been enacted. A study of the most feasible division of the advertising burden is beyond the scope of this publication. It might be suggested, however, that the particular division of costs would depend upon the price paid the grower. With confidence in the mainland market and a goal set for a developmental program, a substantial percentage of the advertising money might be collected prior to initiation of the actual sales program.

With industry-wide cooperation, there is a good possibility that the Territorial Economic Planning and Coordination Authority could aid the new industry during its early stages by matching each 40 cents provided by

the industry with as much as $1.00 from the authority. Thus, it appears likely that the $12,000 program for developing the Bay Area market could be put into effect if $4,800 could be obtained from the industry. This would amount to only 0.4 cents per pound of passion fruit as compared with 1 cent if the industry paid the full $12,000 or a proportional amount in other cities.

The fact that there are eight firms processing passion fruit into one or more forms, including frozen juice for bulk outlets, frozen juice for retail outlets, and heat processed juice for retail outlets, poses a problem in allocating funds for advertising. Since all of the brands would not be expected to be sold or at least to have proportional distribution in each metropolitan area, it seems logical that expenditures for development in each processor's trade area could be roughly in proportion to his purchases of passion fruit in relation to industry-wide totals, keeping in mind minimum needs for effective promotion. For example, if one-half cent per pound is collected on each pound of passion fruit marketed, perhaps half of this could go for industry advertising and the balance for brand advertising. Something along this line would appear to be the only workable solution where a number of brands are involved. With only one brand there would be no problem in this respect. The problem has been worked out for mainland fruit products and could be solved by a cooperative approach by an aggressive association of growers and processors. This important problem will be given further consideration in a forthcoming publication.

SUMMARY AND CONCLUSIONS

The substantial potential sales indicated for frozen passion fruit juice can be realized only through a well-coordinated plan of market development. Such a program should fulfill the following requirements:

(1) The advertising program must be sufficient to result in a high enough rate of movement to justify space in frozen food cabinets in the retail markets.

(2) The promotional and advertising program must provide enough incentive for distributors and retailers to encourage handling of the product. Commitments from distributors and retailers should be obtained prior to the launching of the program.

(3) The cost-price structure of the industry must be such as to provide the advertising margin necessary for market development and still permit selling the product at competitive prices. Based on research in test markets, this requirement could be met in light of present costs for developing the West Coast markets. By the time the large West Coast markets are developed, the cost structure, because of larger volume, should allow sufficient margin for development of more distant markets.

(4) A sufficient supply of juice must be available for each market where the coordinated advertising and promotional program is put into force. This requires precision timing and confidence in the potential market.

(5) Funds for the promotional program must be advanced in order to be available at the beginning of the campaign.

(6) Regardless of the effectiveness of design of a market development program for frozen passion fruit juice, its success will depend to a large extent upon continuous supervision by agencies and persons strongly interested in the welfare of the industry. A neglected market for a new product is likely to be lost. Inasmuch as the distributing and retailing of frozen passion fruit juice incurs a high variable cost, few stores would be willing to handle it as a slow-moving specialty product even at higher than competitive prices. Furthermore, research has indicated a very limited specialty market for frozen juice concentrates, which are best adapted to a broad market at competitive prices.

(7) The lowest advertising cost per unit of sale appears to be obtainable through a coordinated program of advertising and heavy distribution in large metropolitan areas.

Research in mainland test markets indicates that whereas the volume of sales with no advertising is not sufficient to justify space in the frozen food cabinets in most instances, a relatively small amount of properly expended advertising money is sufficient to meet the minimum volume of sale requirements for the frozen food cabinets.

Tentative programs of market development suggested by 12 advertising firms ranged in cost from $9,600 to $50,000 for the San Francisco Bay Area and $30,000 to $100,000 for Los Angeles. Experimental advertising, on the other hand, indicates that a sales volume sufficient to justify retail cabinet space could be realized in the San Francisco Bay Area for a $4,000 investment in spot television.

In mainland market tests, television has proved far more effective than any other media for promoting the sale of frozen passion fruit juice. Since each television broadcast reaches potential customers of a large number of food markets, the better the distribution the lower the cost of advertising per unit of sale.

Store demonstrations were found to be the second best method for introducing frozen passion fruit juice but were considerably more costly per unit of sale than spot television, assuming good distribution in the metropolitan area where the television is viewed.

Radio and newspaper advertising were tested adequately only in a developed market and did not increase sales sufficiently to justify the expenditure. It was assumed that consumers were already using about as much passion fruit juice as they desired at the price and the increase in sales per unit of advertising cost would be expected to be small. Radio and newspaper advertising would be expected to be somewhat more effective as a means of initially introducing the product than as a means of increasing sales after consumers have already been introduced to the product. On the other hand, television proved to be a low-cost medium per unit of sale both in introducing passion fruit juice and in increasing sales at a later date.

Taking into consideration both the recommendations of the advertising agencies and the results of the experimental advertising, a $12,000 program based largely on spot television, but also including radio, newspaper, and a limited investment in store demonstrations, has been suggested as a basic plan for the San Francisco Bay Area. With modifications in accordance with differences in size of the area and relative importance of media, this plan would be expected to provide a reasonably good indication of costs of market development in other metropolitan areas.

The $12,000 program suggested for the San Francisco Bay Area would be expected to sell, with good distribution, a minimum of 50,000 cases of frozen passion fruit juice at a total advertising cost of not more than 24 cents per case or 1 cent per 6-ounce can. It would require 1 cent per pound of passion fruit to finance the program. There is no evidence that the additional sales resulting from a high-cost program would be justified whereas there is indication that the $12,000 program would more than maintain sales at a level in excess of minimum requirements in order to justify space in the frozen food cabinets—and that is the first goal to be reached in light of a tight advertising budget.

Funds for market development could be collected through such an organization as the Hawaii Passion Fruit Growers and Processors Association. A territorial marketing order would be expected to facilitate collection of promotional funds.

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